FACT SHEET FOR STATE WASTE DISCHARGE PERMIT ST-7400
TWIN CITY FOODS, INC. – Stanwood Operations

GENERAL INFORMATION	
Facility Name and Address	TWIN CITY FOODS, Inc. – Stanwood Operations P.O. Box 669 10120 269th Place NW Stanwood, WA 98292 Snohomish County
Type of Facility	Vegetable Processing and Cold Storage
SIC Code	2037
Water Body ID Number	WA-05-1010
Discharge Locations	#001: Groundwater via Land Treatment 597 acres located within the East ½ of S1, T31N, R3E W.M., South ½ S25, S36, T32N, R3E, W.M., Southwest ¼ of the Southwest ¼ S30, Southwest ¼ S31, T32N, of the Stillaguamish floodplain #002: City of Stanwood Wastewater Treatment Plant Latitude: 48° 14' 09" N Longitude: 122°21' 22" W
Contact at Facility	Mr. Mick Lovgreen (360) 629-2111 Dr. Rolf Skrinde, Ph.D., P.E., Manager Corporate Affairs (206) 296-5525
Responsible Official	Mr. Mark Lervick, VP Operations (360) 629-2111

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INTRODUCTION

This fact sheet is a companion document to the draft State Waste Discharge Permit No. ST-7400. The Department of Ecology (the Department) is proposing to issue this permit, which will allow discharge of wastewater to ground via land application for the term of this permit, and temporary discharge of screened process wastewater to the City of Stanwood Wastewater Treatment Plant (Stanwood WWTP) until September 1, 2000. This fact sheet explains the nature of the proposed discharge, the Department's decisions on limiting the pollutants in the wastewater, and the regulatory and technical bases for those decisions and the permit requirements.

Washington State law (RCW 90.48.080 and 90.48.162) requires that a permit be issued before discharge of wastewater to waters of the state is allowed. Regulations adopted by the state include procedures for issuing permits (Chapter 173-216 WAC) and water quality criteria for ground waters (Chapter 173-200 WAC). They also establish requirements which are to be included in the permit.

This fact sheet and draft permit are available for review by interested persons as described in Appendix A--Public Involvement Information.

The fact sheet and draft permit have been reviewed by the Permittee. Errors and omissions identified in these reviews have been corrected before going to public notice. After the public comment period has closed, the Department will summarize the substantive comments and the response to each comment. The summary and response to comments will become part of the file on the permit, and parties submitting comments will receive a copy of the Department's response. Changes to the permit will be addressed in Appendix D--Response to Comments.

BACKGROUND INFORMATION

DESCRIPTION OF THE FACILITY

HISTORY

The Stanwood Twin City Foods (TCF) plant, opened more than 55 years ago, was the first of many vegetable processing plants opened by Twin City Foods. TCF now has vegetable processing plants in Ellensburg, Washington; Prosser, Washington; Pasco, Washington; Lewiston, Idaho; and Lake Odessa, Michigan. The Stanwood site also houses corporate headquarters. In addition, there are cold storage facilities in Arlington and Kennewick, Washington that store vegetables but do not engage in processing activities.

Effluent from the original canning operations discharged directly to the Stillaguamish River. As TCF grew in the 1950's and effluent volumes increased, they began irrigating onto adjacent farmland on a trial basis. The City of Stanwood built a lagoon system in the 1970's to treat municipal wastewater and the industrial wastewater from TCF; however, most of the TCF process and wastewater continued to be land applied. When the high discharge volumes of summer process wastewater from TCF proved to overload the Stanwood lagoon system, TCF began full-time land application of process and summer repack wastewater.

Off-season repack wastewater has always discharged to the Stanwood WWTP. (Repack water is considered process wastewater but was thought to be dissimilar in characteristics so has been categorized separate from fresh vegetable process wastewater).

Non-contact cooling water was discharged to the Stillaguamish River until 1998 when this discharge was converted to a closed loop system.

The City of Stanwood is currently in the planning stage for new wastewater treatment facilities. TCF has given notice that they will not be discharging process or repack water to the new plant. Instead, they will construct additional storage for their wastewater and increase their land application activities.

INDUSTRIAL PROCESSES

The harvesting and processing of locally grown vegetables are seasonal, beginning with fresh peas in July. Processing consists of air cleaning, washing with water, blanching, grading, final inspection, and freezing. The frozen product is stored in 1,700-pound tote bins in cold storage warehouses until it can be repacked in smaller portions. Repacking of the frozen product occurs throughout the year. Wastewater is generated from the washing of the vegetables from the field, hydraulic conveyance within the facility, cooling water, in the processing, and repack clean-up activities. Repack operations occur year-round and are separate from processing operations. Fresh vegetable processing occurs concurrently during July and August for about 45 days.

Since the fire destroyed the old plant in 1997, corn has not been processed at this site. Presently, only peas are processed but other vegetables may be added in the future. Repack includes peas, beans, corn, and carrots.

TREATMENT PROCESSES

Wastewater is conveyed by a system of gutters located throughout the plant to sumps, through two - six inch lines. Sump pumps lift the wastewater to a fine mesh screening system. Solids are separated out of the process waste stream with a roto-shear screen system (screen within a screen - .020 inches). The removed solids are used by local farmers as animal feed.

The screened effluent gravity flows to either the City of Stanwood Wastewater Treatment Plant or to a storage lagoon prior to land application. In the past, all repack and clean-up water has discharged to the Stanwood system for about 6 months and to the lagoon for the other 6 months.

The wastewater gravity flows two miles through two - 15 inch lines to a 470'x130' east end and 165' at west end x 16' deep, 8,437,080 gallon capacity lagoon. The interior is sealed with natural clays from the region (per the Engineering Report, December 1999). A pumping station with one 100 horsepower and two 150 horsepower units pumps the water from the holding lagoon to the irrigation areas through an underground manifold system. Two pumps are generally used for the irrigation operation with the third used as a standby. The wastewater is distributed from the manifolds to the sprayfields via seven spray guns.

The back parking lot, where vegetable trucks unload to the plant, drains to the lagoon system. The front portion of the parking lot drains to the City of Stanwood's storm drain system.

SPRAYFIELD AND DISTRIBUTION SYSTEM

The application land comprises about 800 acres of reclaimed farmland in the Stillaguamish floodplain of which about 597 acres are used for actual wastewater application. The area is divided into 24 fields. A system of dykes was constructed which is augmented by interconnecting deep ditches to drain the fields.

Tide gates are located at the end of each ditch to prevent saltwater intrusion during incoming tides. Much of the land is underlain by a system of tiles, which are located approximately eighteen inches to three feet deep and drain into the deep ditches.

An underground manifold system allows TCF personnel to rotate the irrigation application as needed, depending on the ability of the fields to accept wastewater and crop needs.

The application field is seeded in a pasture mix developed for use in the area as a good cattle food. The primary species making up this mix are Timothy, fescue, rye, and orchard grass. About 3-5 mowings occur per irrigation season. The fields are tilled and reseeded every 5-8 years.

The sprayfield area is also used intermittently for dairy waste application, with about 300 acres being used each year for dairy waste disposal. The amount of nitrogen produced per year at the dairy calculates out to 114,373 pounds. Subtracting out 30% lost in storage in the dairy lagoon and 25% lost by volatilization during land application equals 60,045 pounds of nitrogen remaining. Dividing this over the 430 acres used per year for dairy application equals about 140 pounds per acre per year of dairy waste. Taking the 140 pounds per acre and adding the TCF wastewater nitrogen (for the 300 acres that the wastes are commingled) equals about 172 pounds nitrogen per acre for those 300 acres. (The remaining 297 acres have only 32 pounds of nitrogen per acre per year applied.) The crop uptake is about 250 pounds per acre per year. The nitrogen limit for TCF was therefore set at 100 pounds per acre to protect the groundwater standard for nitrogen of 3 mg/L.

GROUND WATER

Because of the drain tiles located throughout the application fields at a depth of eighteen inches to three feet, and the proximity of surface water drainage to the ground surface, groundwater monitoring wells are not required. Instead, close attention to application rates, nutrient uptake, soil and wastewater monitoring, and surface water monitoring is included in this permit. The groundwater and marine surface water pH standard of 6.5 to 8.5 standard units is listed in the permit.

PERMIT STATUS

The previous permit for this facility was issued on January 4, 1993, and placed effluent limitations on flow and temperature for the non-contact cooling water discharged to the Stillaguamish River from outfall #001, flow and pH limitations on the screened process wastewater leaving the lagoon prior to land application (outfall #002), and flow and pH limitations on repack wastewater discharged to the City of Stanwood WWTP (outfall #003).

The permit was modified October 7, 1996, to reflect a reduced flow for vegetable washing only and eliminated the non-contact cooling water discharge to the Stillaguamish River and the winter repack wastewater to the Stanwood WWTP.

An application for permit renewal was submitted to the Department on May 19, 1997. Amendments to the application were received April 17, 1998, declaring that the surface water discharge would be eliminated. This was verified during a compliance inspection on July 20, 1998. An updated application for Discharge of Industrial Wastewater to Ground Water was submitted December 30, 1999.

SUMMARY OF COMPLIANCE WITH THE PREVIOUS PERMIT

The facility last received an inspection on February 16, 2000. They were in compliance with their permit at that time.

During the history of the previous permit, the Permittee has remained in compliance based on Discharge Monitoring Reports (DMRs) and other reports submitted to the Department and inspections conducted by the Department. Hydraulic and nutrient loadings to the application fields could not be adequately assessed from the Annual Reports because the dairy waste contributions were not factored into the calculations.

WASTEWATER CHARACTERIZATION

The concentration of pollutants was summarized from the 1997 and 1998 Annual Reports and the December 1999 report. The raw wastewater discharge is characterized for the following parameters:

Table 1: Process/Repack Wastewater Characterization

Parameter	1997	1998	1999
Flow (process water)	1.4 MGD seasonal avg. 2.4 MGD maximum	0.6 MGD avg.	0.54 MGD
Total Seasonal Flow		21.6 MG	
BOD_5	1,311 mg/L avg. range 422-2,200 mg/L	1,935 mg/L avg. range 1730-2140	2,375 mg/L avg.
NH4-N (mg/L)	31	62.5	73.4
NO3 + NO2-N	0.23	ND, 0.3	.194
TKN	102	110.2	95
Mg	36	40.5	39.3
Ca	32	37.5	32.7
Na	824	631.5	542
Cu	0.172	N/A	N/A
Zn	0.37	N/A	N/A
pH (std. units)	7.6	7.1-7.4	7.79
Pesticides	Non-detectable	N/A	N/A
Conductance	4,660 µmhos/cm	3715 µmhos/cm	3,405 µmhos/cm

The repack wastewater discharge to the City of Stanwood WWTP was summarized from four consecutive weekly samples taken in October and November of 1998, at the request of the Department. The repack wastewater discharge is characterized for the following parameters:

Table 2: Repack Wastewater Characterization

Parameter	Pre-recirculation Project Concentration	Post-recirculation Concentration
Flow –	About 36,000 gpd monthly average	20,000 gpd average
BOD_5 – average	127 mg/L	1312 mg/L [a]
BOD_5 (range)	47-194 mg/L	780 -1800 mg/L [a]
TSS – average	35 mg/L	275 mg/L [a]
TSS – range	25 - 44 mg/L	173 - 490 mg/L [a]
pH	7.6 std. units	
[a] One-time sampling results of BOD 2610 and TSS 4380 not included.		

The pre-recirculation flow values were based on calculations, taken from incoming plant water meter readings, subtracting out meter readings from boiler and evaporative condenser water. The pre-recirculation wastewater characteristic values are from TCF sampling, taken in 1998. More recent sampling by KCM (May and June 1999) and Tetra Tech (1999) indicates average BOD values around 350 mg/L with a wide range. The post-recirculation concentration values were provided by TCF in their response to the draft permit and fact sheet comment letter.

Table 3: 1997-1998 Application Field - Soil Analysis in mg/kg

Parameter	Field #3	Field #7	Field #21	Year
Nitrogen, total soluble	3.2	5.5	5.8	1997
	6.5	4.8	7.9	1998
Calcium, extractable	7370	7410	7110	1997
	7120	7310	7250	1998
Magnesium, extractable	17,600	16,800	16,000	1997
	16,600	16,500	17,200	1998
Sodium, extractable	700	938	1,500	1997
	997	733	890	1998
Potassium, extractable	2,590	2,830	3,340	1997
	2,600	2,620	3,620	1998
Total Phosphorous as P	1,882	1,870	3,518	1997
	1,670	1,630	2,875	1998
pH, standard units	5.82	5.53	5.62	1997
	5.15	5.73	5.90	1998

These values are taken from the 1997 and 1998 Annual Reports submitted by Twin City Foods.

Table 5: 1998 Surface Water (Ditch) Analysis

Parameter	Station 1	Station 2	Station 3	Station 4	Date
NH4-N, mg/L	1.39	ND	.451	ND	9/5/98
	ND	ND	ND	ND	6/4/98
NO3-N, mg/L	ND	ND	ND	ND	9/5/98
	6.55	ND	1.23	9.49	6/4/98
TKN, mg/L	4.34	ND	19.6	ND	9/5/98
	ND	6.89	2.6	ND	6/4/98
Hardness, mg/L	2,020	2,740	2,880	749	9/5/98
	1,500	721	256	214	6/4/98
pH, standard units	7.72	7.71	7.17	6.94	9/5/98
	7.76	7.79	7.76	7.98	6/4/98
Conductance, µmhos/cm	15,200	18,800	19,800	5,620	9/5/98
	16,200	4,990	2,530	3,120	6/4/98
Temperature, °C	17	18	19	18	9/5/98
	16	16	16	15	6/4/98

*ND=Non-Detectable

Overall, TKN and conductivity have shown an increase in the surface water samples from the beginning of the season sampling to the end of the season.

PROPOSED PERMIT LIMITATIONS

State regulations require that limitations set forth in a waste discharge permit must be either technology-based, water quality-based, or based on the effects of the pollutants to the POTW (local limits). Wastewater must be treated using all known, available, and reasonable methods of treatment (AKART) and not pollute the waters of the State. The minimum requirements to demonstrate compliance with the AKART standard were determined in the engineering report and the annual submittal of irrigation and crop management plans that show nutrient loading relative to agronomic rates.

The permit also includes limitations on the quantity and quality of the wastewater applied to the sprayfield that have been determined to protect the quality of the ground water and surface water. The Department developed specific land application design criteria for this facility in the last permit. Water quality-based limitations are based upon compliance with the Ground Water Quality Standards (Chapter 173-200 WAC) and were determined by modeling the wastewater and land application site.

Technology-based limitations are based on the agronomic rates of the crop system (crop uptake) and any treatment capabilities of the soils (e.g., denitrification, nitrification). The treatment capacity of the sprayfields changes almost yearly as the type of crops are rotated, the amount of each crop that is grown changes, and the dairy waste application changes. The production-based limits for TSS and BOD listed in 40 CFR 407 Subpart G-*Canned and Preserved Vegetables* are less stringent than the agronomic requirements of this permit and therefore are not listed.

The more stringent of the water quality-based or technology-based limits are applied to each of the parameters of concern. Each of these types of limits is described in more detail below.

TECHNOLOGY-BASED EFFLUENT LIMITATIONS

All waste discharge permits issued by the Department must specify conditions requiring available and reasonable methods of prevention, control, and treatment of discharges to waters of the state (WAC 173-216-110). The following permit limitations are necessary to satisfy the requirement for AKART:

1. Wastewater shall be land applied via spray irrigation at agronomic rates for total nitrogen and water, and at rates for other wastewater constituents that are protective of background ground water quality.

2. Total nitrogen and water shall be applied to the sprayfields as determined by a current irrigation and crop plan.

3. The system must be operated so as to protect the existing and future beneficial uses of the ground water and not cause a violation of the ground water standards.

GROUND WATER QUALITY-BASED EFFLUENT LIMITATIONS

In order to protect existing water quality and preserve the designated beneficial uses of Washington's ground waters including the protection of human health, WAC 173-200-100 states that waste discharge permits shall be conditioned in such a manner as to authorize only activities that will not cause violations of the Ground Water Quality Standards.

The discharges authorized by this proposed permit are not expected to interfere with beneficial uses of ground water or surface water. Flow limits and requirements based on protecting the ground water are established through modeling and agronomic uptake calculations for the application site.

The nitrogen contribution to the fields from the dairy operations at the Lervick/Kwant Dairy was calculated to be about 60,045 pounds per year (after removing 30% due to denitrification in the lagoon and 25% volatilization during the land application process). The total application area for the dairy waste is 430 acres, of which 300 acres overlap with Twin City Foods wastewater application. This calculates out to 140 lbs. N/acre/year dairy waste. Since the grass mixture TCF uses removes about 250 lbs./N/acre/year, the balance remaining available for TCF wastewater is 110 pounds per acre per year. TCF historically reports around 25-35 pounds of nitrogen per acre per year. The total process wastewater and repack contribution from TCF is expected to be well below the 100 pounds/acre/year limit imposed in the permit.

EFFLUENT LIMITATIONS FOR MUNICIPAL PLANT DISCHARGE

The City of Stanwood WWTP discharge to the Stillaguamish River is permitted under NPDES permit WA-002029-0, issued October 30, 1998, and expiring June 30, 2003. The design criteria for the facility contained in approved engineering plans, reports, and revisions are:

Avg. flow for the max. month	0.68 MGD
Influent BOD load for the max. month	1,350 lbs./day

The Stanwood WWTP has experienced high influent BOD loadings that have caused compliance problems at the WWTP. The City of Stanwood undertook an intensive three-week wastewater characterization study and determined that TCF has a highly variable strength wastewater discharge to the treatment plant that has the potential to impact operations. The water reduction efforts at the TCF plant has dramatically increased their BOD loadings. The City of Stanwood Public Works, through their consultant KCM, recommends an average BOD load limit of 125 lbs./day for repack processing days and a maximum daily limit of 150 lbs./day. The City of Stanwood has agreed to a maximum flow increase to 75,000 gpd with an instantaneous peak not to exceed 300 gpm.

An increase in allowable BOD and TSS discharge from TCF to the City of Stanwood WWTP could put the city over their actual plant capacity and current permit limits, therefore, the request by TCF for an increase in BOD limits has been denied.

The permit will contain limitations for flow and BOD in wastewater discharges to the Stanwood plant based on the City's recommendations.

COMPARISON OF LIMITATIONS WITH THE EXISTING PERMIT

Table 2: Comparison of Previous and New Limits

Parameter	Existing Limits	Proposed Limits
Flow	Surface: 0.9 mgd Lagoon: 2.49 mgd Stanwood WWTP: 60,000 gpd	None 2.49 mgd max. 75,000 gpd max. (with an instantaneous peak of 300 gpm) 60,000 gpd weekly avg. 19 inches/acre/yr. on fields
BOD_5	Stanwood WWTP: none	125 lbs./day average, 150 lbs./day maximum
Total Nitrogen (to fields)	Not to exceed calculated crop uptake	100 lbs./acre/year
pH	Lagoon discharge: Between 6-9 std units Stanwood WWTP: Between 5-11 std units	Between 6.5-8.5 std units Between 5-11 std units
The BOD limitation was requested by the Stanwood WWTP based on current loadings, available plant capacity, and slug loading impacts to the plant.		

The previous permit listed outfall #001 as the non-contact cooling water discharge to the Stillaguamish River, #002 as the process wastewater discharge from the lagoon to the land application site, and #003 the winter repack discharge to the City of Stanwood WWTP.

The proposed permit describes outfall #001 as the process wastewater discharge from the lagoon onto land via spray irrigation and outfall #002 as the repack wastewater discharge to the City of Stanwood WWTP.

The limits for hydraulic loading rate based on soil permeability were calculated using methods described in the EPA publication Land Treatment of Municipal Wastewater (1981). The TCF hydraulic loading limits were computed using evapo-transpiration values for pasture grass at Stanwood and soil permeability's based on Soil Conservation Service data. See Appendix C for the specific calculations.

The maximum land application rates based on nitrogen loading limits were also calculated using methods described in EPA, Land Treatment of Municipal Wastewater (1981). The calculated allowable loading based on nitrogen limits, crop uptake, dairy over-application, and estimated nitrogen removal of 55% by volatilization and denitrification (based on Snohomish Conservation District supplied NRCS spreadsheet) is 100 pounds of nitrogen per acre per year from TCF wastewater. The proposed loading at TCF falls within the EPA recommended limits for nitrogen loading.

The previous permit addressed storm water and contained requirements for a Storm Water Pollution Prevention Plan and other provisions to prevent the pollution of storm water. This permit is a State Waste Discharge Permit and not a NPDES permit. The authority to implement these storm water requirements is contained in Title 40 subpart 122.22, and Title 33 of the Federal Water Pollution Control Act. The storm water provisions will be separately administered under the General Stormwater Permit.

MONITORING REQUIREMENTS

Monitoring, recording, and reporting are specified to verify that the treatment process is functioning correctly, that ground water criteria are not violated, and that effluent limitations are being achieved (WAC 173-216-110).

PROCESS WASTEWATER MONITORING

The monitoring schedule is detailed in the proposed permit under Special Condition S2.A. Specified monitoring frequencies take into account the quantity and variability of the discharge, the treatment method, past compliance, significance of pollutants, and cost of monitoring. Flow monitoring occurs on repack water about 10 months out of the year. The flow values are calculated during the other two months. TCF claims that flow monitoring of such variable volumes (20,000 gpd - 2,500,000 gpd) cannot be accurately measured. This permit requires submitting <u>total</u> inflow water to the facility and then a calculation of what wastewaters are discharging to the lagoon(s). The permit will be reopened or a compliance schedule instituted if the Department feels this method does not adequately characterize flow values to the sprayfields.

REPACK WASTEWATER MONITORING

The repack wastewater discharge to the City of Stanwood WWTP monitoring schedule is detailed under Special Condition S2.B. Because of loading concerns at the Stanwood WWTP, BOD sampling and limitations have been added to this permit.

SURFACE WATER MONITORING

The Permittee is required in Special Condition S2.C. of the proposed permit to collect surface water samples from selected stations in the drainage ditch network adjacent to the application fields. Four sets of ditch samples are taken at each station each year: one pre-season, two during the processing season, and one post-season. An upgradient station (Station 5) has been identified as the control sample station. Recent information suggests that this station is heavily influenced by dairy waste discharges unrelated to the TCF sprayfield site. Location of a new control station is being considered for this permit cycle.

The monitoring information is used to monitor water quality impacts of the sprayfield application activities and may result in a permit modification or limits in the next renewal.

Surface water monitoring stations were set up because viable groundwater sampling was not feasible with the drain tiles in the application field. The goal of surface water monitoring is to follow and detect trends in water quality in the ditches receiving runoff or filtered water from the sprayfield area.

SOIL MONITORING

Soil monitoring will be required to help determine whether or not nutrients and salts are being flushed beyond the root zone, and to help determine nutrient loading and supplemental fertilization rates, if needed. Healthy soils are needed for healthy crops. Results of the soil monitoring will be reported in the annual Irrigation and Crop Plan.

CROP MONITORING

Crop monitoring will be required to help determine the uptake of nutrients (treatment) by the cover crops. Values will be reported in the annual Irrigation and Crop Plan, and will be used for determining the nutrient balance of the system.

OTHER PERMIT CONDITIONS

REPORTING AND RECORDKEEPING

The conditions of S3 are based on the authority to specify any appropriate reporting and recordkeeping requirements to prevent and control waste discharges (WAC 273-216-110).

LAGOON LOADING

The design criteria for the storage lagoon are taken from the December 1999 Engineering Report prepared by Twin City Foods for renewal of NPDES permit WA-000357-3 and are as follows:

Storage lagoon: 8.437 million gallons capacity
470’ x 130’ at the east end x 165’ at the west end x 16’ deep

The permit requires the Permittee to maintain adequate capacity to treat the flows and waste loading to the application field (WAC 173-216-110[4]). For significant changes in loadings to the lagoon, the permit requires a new application and an engineering report (WAC 173-216-110[5]).

IRRIGATION AND CROP MANAGEMENT PLAN

The Irrigation and Crop Management Plan is required to support the engineering report(s) and operations and maintenance manual. This plan shall include a consideration of wastewater application at agronomic rates and should describe and evaluate various irrigation controls.

OPERATIONS AND MAINTENANCE

The proposed permit contains condition S4. as authorized under RCW 90.48.110, WAC 173-220-150, Chapter 173-230 WAC, and WAC 173-240-080. It is included to ensure proper operation and regular maintenance of equipment, and to ensure that adequate safeguards are taken so that constructed facilities are used to their optimum potential in terms of pollutant capture and treatment.

SOLID WASTE PLAN

The Department has determined that the Permittee has a potential to cause pollution of the waters of the state from leachate of solid waste.

This proposed permit requires, under the authority of RCW 90.48.080, that the Permittee update the solid waste plan designed to prevent solid waste from causing pollution of the waters of the state and submit it to the Department.

GENERAL CONDITIONS

General Conditions are based directly on state laws and regulations and have been standardized for all industrial waste discharge to ground water permits issued by the Department.

Condition G1 requires responsible officials or their designated representatives to sign submittals to the Department. Condition G2 requires the Permittee to allow the Department to access the treatment system, production facility, and records related to the permit. Condition G3 specifies conditions for modifying, suspending, or terminating the permit. Condition G4 requires the Permittee to apply to the Department prior to increasing or varying the discharge from the levels stated in the permit application. Condition G5 requires the Permittee to construct, modify, and operate the permitted facility in accordance with approved engineering documents. Condition G6 prohibits the Permittee from using the permit as a basis for violating any laws, statutes, or regulations. Conditions G7 and G8 relate to permit renewal and transfer. Condition G9 requires the payment of permit fees. Condition G10 describes the penalties for violating permit conditions.

RECOMMENDATION FOR PERMIT ISSUANCE

This proposed permit meets all statutory requirements for authorizing a wastewater discharge, including those limitations and conditions believed necessary to control toxics, and to protect human health and the beneficial uses of waters of the State of Washington. The Department proposes that the permit be issued for five (5) years.

REFERENCES FOR TEXT AND APPENDICES

Engineering Report Summary, May 1992.

Permit Application, Received December 30, 1999.

Personal Communication, KCM Inc. (J. Markus), e-mail January 03, 2000.

Twin City Foods, Annual Reports, 1997 and 1998.

Washington State Department of Ecology, 1993. Guidelines for Preparation of Engineering Reports for Industrial Wastewater Land Application Systems, Ecology Publication # 93-36. 20 pp.

Washington State Department of Ecology, 1996. Implementation Guidance for the Ground Water Quality Standards, Publication #96-02, 135 pp.

Washington State Department of Ecology, 1995. Irrigation Management Practices to Protect Ground Water and Surface Water Quality, State of Washington.

Washington State University, November 1981. Laboratory Procedures - Soil Testing Laboratory. 38 pp.

APPENDIX A--PUBLIC INVOLVEMENT INFORMATION

The Department has tentatively determined to reissue a permit to the applicant listed on page one of this fact sheet. The permit contains conditions and effluent limitations which are described in the rest of this fact sheet.

Public Notice of Application was published on November 22, 1997, and November 29, 1997, in *The Skagit Valley Herald* to inform the public that an application had been submitted and to invite comment on the reissuance of this permit.

The Department published a Public Notice of Draft (PNOD) on May 12, 2000, in *The Skagit Valley Herald* to inform the public that a draft permit and fact sheet were available for review. Interested persons were invited to submit written comments regarding the draft permit. The draft permit, fact sheet, and related documents were available for inspection and copying between the hours of 8:00 a.m. and 4:30 p.m. weekdays, by appointment, at the regional office listed below. Written comments were mailed to:

Water Quality Permit Coordinator
Department of Ecology
Northwest Regional Office
3190 160th Avenue SE
Bellevue, WA 98008-5452

The Department considered all comments received within thirty (30) days from the date of Public Notice of Draft indicated above, in formulating a final determination to issue, revise, or deny the permit. The Department's response to all significant comments is available upon request and will be mailed directly to people expressing an interest in this permit.

Further information may be obtained from the Department by telephone, (425) 649-7201, or by writing to the address listed above.

This permit and fact sheet were written by Lori LeVander.

APPENDIX B--GLOSSARY

Agronomic Rate--The rate at which a viable crop can be maintained and there is a minimal leaching of chemicals downwards below the root zone. Crops should be managed for maximum nutrient uptake when used for wastewater treatment (Ecology, 1996).

Ambient Water Quality--The existing environmental condition of the water in a receiving water body.

Average Monthly Discharge Limitation--The average of the measured values obtained over a calendar month's time.

Best Management Practices (BMPs)--Schedules of activities, prohibitions of practices, maintenance procedures, and other physical, structural, and/or managerial practices to prevent or reduce the pollution of waters of the State. BMPs include treatment systems, operating procedures, and practices to control: plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage. BMPs may be further categorized as operational, source control, erosion and sediment control, and treatment BMPs.

BOD_5--Determining the Biochemical Oxygen Demand of an effluent is an indirect way of measuring the quantity of organic material present in an effluent that is utilized by bacteria. The BOD_5 is used in modeling to measure the reduction of dissolved oxygen in a receiving water after effluent is discharged. Stress caused by reduced dissolved oxygen levels makes organisms less competitive and less able to sustain their species in the aquatic environment. Although BOD is not a specific compound, it is defined as a conventional pollutant under the federal Clean Water Act.

Bypass--The intentional diversion of waste streams from any portion of the collection or treatment facility.

Composite Sample--A mixture of grab samples collected at the same sampling point at different times, formed either by continuous sampling or by mixing discrete samples. May be "time-composite" (collected at constant time intervals) or "flow-proportional" (collected either as a constant sample volume at time intervals proportional to stream flow, or collected by increasing the volume of each aliquot as the flow increased while maintaining a constant time interval between the aliquots).

Engineering Report--A document, signed by a professional licensed engineer, which thoroughly examines the engineering and administrative aspects of a particular domestic or industrial wastewater facility. The report shall contain the appropriate information required in WAC 173-240-060 or 173-240-130.

Grab Sample--A single sample or measurement taken at a specific time or over as short period of time as is feasible.

Industrial Wastewater--Water or liquid-carried waste from industrial or commercial processes, as distinct from domestic wastewater. These wastes may result from any process or activity of industry, manufacture, trade or business, from the development of any natural resource, or from animal operations such as feed lots, poultry houses, or dairies. The term includes contaminated storm water and, also, leachate from solid waste facilities.

Maximum Daily Discharge Limitation--The highest allowable daily discharge of a pollutant measured during a calendar day or any 24-hour period that reasonably represents the calendar day for purposes of sampling. The daily discharge is calculated as the average measurement of the pollutant over the day.

pH--The pH of a liquid measures its acidity or alkalinity. A pH of 7 is defined as neutral, and large variations above or below this value are considered harmful to most aquatic life.

Soil Scientist--An individual who is registered as a Certified or Registered Professional Soil Scientist or as a Certified Professional Soil Specialist by the American Registry of Certified Professionals in Agronomy, Crops, and Soils or by the National Society of Consulting Scientists or who has the credentials for membership. Minimum requirements for eligibility are: possession of a baccalaureate, masters, or doctorate degree from a U.S. or Canadian institution with a minimum of 30 semester hours or 45 quarter hours professional core courses in agronomy, crops or soils, and have 5, 3, or 1 year(s), respectively, of professional experience working in the area of agronomy, crops, or soils.

State Waters--Lakes, rivers, ponds, streams, inland waters, underground waters, salt waters, and all other surface waters and watercourses within the jurisdiction of the state of Washington.

Stormwater--That portion of precipitation that does not naturally percolate into the ground or evaporate, but flows via overland flow, interflow, pipes, and other features of a storm water drainage system into a defined surface water body or a constructed infiltration facility.

Technology-based Effluent Limit--A permit limit that is based on the ability of a treatment method to reduce the pollutant.

Total Suspended Solids (TSS)--Total suspended solids is the particulate material in an effluent. Large quantities of TSS discharged to a receiving water may result in solids accumulation. Apart from any toxic effects attributable to substances leached out by water, suspended solids may kill fish, shellfish, and other aquatic organisms by causing abrasive injuries and by clogging the gills and respiratory passages of various aquatic fauna. Indirectly, suspended solids can screen out light and can promote and maintain the development of noxious conditions through oxygen depletion.

Water Quality-based Effluent Limit--A limit on the concentration of an effluent parameter that is intended to prevent pollution of the receiving water.

APPENDIX C--TECHNICAL CALCULATIONS

APPENDIX D--RESPONSE TO COMMENTS

The following comments were received from Twin City Foods, Inc., on May 25, 2000.

1) *Request that flow meter in irrigation line not be required.*

The request for calculating flows to the irrigation fields based in flows coming into the processing facility then subtracting out those flows that are not discharged to the lagoon is not an accurate measure of flow to the fields. This doesn't account for rainwater accumulation in the lagoon and appears to be arbitrary in calculating evaporated water and boiler blowdown. Your letter states that all the incoming water into the plant is metered. TCF also meters all uses of this water except that which goes to irrigation. Past discussions suggest that flow calculations were derived from calculations based not on meters but assumed performance of various machinery and processes. Is the domestic waste monitored? The goal is to get accurate readings of discharges to the sprayfields.

Ideally, TCF should install a metering device on flow leaving the lagoon to more accurately assess the hydraulic loading to the application fields. This permit is being issued with the requirement to report <u>all</u> incoming flow to the TCF facility (as a worst case scenario) in addition to the usual calculations based on expected flows to the lagoon(s). The permit will be reopened and modified or a Compliance Schedule instituted if the Department deems this system to be inadequate.

2) *Objection to new soil monitoring requirements.*

The previous permit required Sprayfield Soils monitoring from three sites, once a year. The proposed permit requires yearly sampling from the same three locations, but adds sulfate, chloride, conductivity, organic matter, cation exchange capacity, and exchangeable sodium percentage to the sampling parameters. The previous permit required pesticide sampling in the soils if the pesticide was detected in the wastewater.

Excess sodium levels may impact the physical condition of the soil by formation of crusts, water-logging, and/or reduced soil permeability (Metcalf & Eddy, 1991). The percentage of organic matter in the soil is an indicator of soil health.

The request for eliminating the new soil monitoring requirements is denied. Please note that the permit has eliminated metals and pesticide monitoring already.

3) *Request for modifications in crop monitoring requirement.*

After review of crop monitoring requirement, we will reduce the sampling requirement from once per harvest (4-6 times a year) to twice per year.

4) *Request that pH measurements be accepted.*

There appears to be a misunderstanding in the reading of this section. Since the TCF lab is not accredited, then pH and conductivity do not need to be accredited. If a contract lab is used for sample analysis, that lab must be accredited for the analysis they are doing. If TCF elects to have the contract lab also test pH and conductivity, than the contract lab must be accredited for pH and conductivity.

5) *Request to include stormwater in Permit ST-7400.*

The previous permit addressed storm water and contained requirements for a Storm Water Pollution Prevention Plan and other provisions to prevent the pollution of storm water. This permit is a State Waste Discharge Permit and not a NPDES permit. The authority to implement these storm water requirements is contained in Title 40 subpart 122.22, and Title 33 of the Federal Water Pollution Control Act. The storm water provisions will be separately administered under the General Stormwater Permit. We do not have the legal authority to address surface water discharges, such as stormwater in this case, in a State Waste Discharge Permit.

An application for coverage under the Baseline General NPDES Stormwater Permit will be sent to TCF. The stormwater plans you have already developed are transferable to the new permit. There will be no extra fees associated with that coverage.